

REMARKS/ARGUMENTS

Claims 1-8, 10-24, 29 and 31-53 are pending in the application. Claims 1-8, 10-24, 29 and 31-33 are rejected. Claims 1, 10, 29 and 33 have been amended. Claims 34-53 have been added. No new matter has been added. In view of the foregoing amendments and the following remarks, Applicants respectfully request allowance of the application.

All claims stand rejected as obvious over prior art. Specifically, claims 1, 5, 10-13, 18-22, 29 and 32-33 stand rejected as obvious over Lee, et al., "Temporally Adaptive Interpolation Exploiting Temporal Masking in Visual Perception," and Tourapis, et al. (US Patent Application Publication 2003/0142748 A1). Claims 2, 6-8 and 17 are rejected as obvious over Lee in view of Tourapis and Lan et al., "Scene-Context Dependent Reference Frame Placement for MPEG Video Coding." Claims 3, 4, 14 and 23 are rejected as obvious over Lee, Tourapis and Liu et al., (US Patent Application Publication 2002/0146071 A1). Claims 15 and 24 are rejected as obvious over Lee, Tourapis and Mitchell, "MPEG Video Compression Standard." Claim 16 is rejected as obvious over Lee, Tourapis and Ohm, "Digitale Bildcodierung." Claim 31 is rejected under 35 U.S.C. § 103(a) as obvious over Tourapis in view of Ardizzone et al., "Video Indexing Using MPEG Motion Compensation Vectors." Claim 32 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Lee, in view of Tourapis, and further in view of Van Overveld et al., (hereinafter "Overveld"), US Pub. No. 2002/0012452. Applicants respectfully request withdrawal of the outstanding rejections.

INFORMATION DISCLOSURE STATEMENT

The Office asserts that Applicants' IDS filed Dec. 22, 2008 did not comply with 37 CFR § 1.98(a)(2) as some of the copies were not clear, and due to clerical error some abstracts accidentally were placed at the back of the references instead of at the front. The undersigned's secretary, Barbara Vance, spoke with Examiner Werner on Jun. 15, 2009, and was told that Applicants should resubmit the foreign patent references in a new IDS (which also will contain new references never before filed), being sure to obtain more legible copies where available and being sure to place the abstracts at the front of the foreign patent references. Applicants have complied with these instructions.

Additionally, it has come to Applicants' attention that many of the foreign patent references filed in the previous IDS belong to the same patent family, and in certain of these instances the corresponding US case already was filed; in light of this, Applicants are proceeding as follows:

(1) JP 2000-102021(A), EP 0987903(A1), FR 2783388(A1), CN 1248864(A), ZA 995802(A1) and KR 2000-023133(A) are not being re-submitted because the corresponding US case (US 6480540) already was filed (and considered by the Examiner) in the previous IDS;

(2) WO 95/20863(A1), EP 0741945(A1), JP 9509024(T), CA 2182005(A1) and AU 1729495(A) are not being resubmitted because the corresponding US case (US 5592226) already was filed (and considered by the Examiner) in the previous IDS;

(3) JP 2001-128179(A) is not being re-submitted because the corresponding US case (US 6611558) already was filed (and considered by the Examiner) in the previous IDS;

(4) JP 11-275585(A1) and SG 74691(A1) are not being re-submitted because the corresponding US case (US 6307886) already was filed (and considered by the Examiner) in the previous IDS;

(5) CN 1255021(AI), KR 2000-0035571(A) and JP 2000-165889(A1) are not being re-submitted because EP 1005229(A2), which is part of the same family, is being re-submitted;

(6) JP 2000-224590(A) is not being re-submitted because EP 1022667(A2), which is part of the same family, is being re-submitted; and

(7) US 6914937 is being filed instead of JP 2002-101416(A).

Also, Applicants are citing on the attached PTO/SB/08a form, for a second time, the Non-Patent Literature Mitchell et al. reference because, although page 331 was submitted to the PTO with the IDS filed in July, 2006, the reference to this page number was omitted. The reference is being re-cited so that the citation will be correct on the face of the patent should a patent issue.

CLAIM REJECTIONS – 35 USC § 101

Claims 1-8, 10-24, 29 and 31-33 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter. With respect to independent claims 1, 10, 29 and 33, Applicants have complied with the Office's suggestion to "state within the steps in the method that the method operates on video data." With respect to apparatus claim 18, there is no need to amend the claim as the first element states "a memory to store pictures of a video sequence," therefore any reference to a stored picture within the claim and its dependents obviously is referring to video data. Accordingly, Applicants respectfully request withdrawal of these rejections.

CLAIMS 1-8, 10-24, 29, AND 31-33 DEFINE OVER THE PRIOR ART

Claims 1, 5, 10-13, 18-22, 29, and 32-33 are rejected as obvious over Lee in view of Tourapis. The remaining claims stand rejected as obvious over Lee, Tourapis and various other supplemental references. Applicants respectfully request withdrawal of the outstanding rejections because the cited art, even if considered in combination, do not teach or suggest every element of independent claims 1, 10, 18, 29, and 33.

Consider claim 1, which states in part:

comparing the motion speed of a first picture in the plurality, temporally closest to the reference picture, ***to the motion speeds of each of the other pictures therein***, and
for each picture in the plurality of pictures ***exhibiting motion speed consistent with the first picture, assigning such pictures as B pictures.***

The cited art does not teach or suggest this subject matter. The Office asserts that Lee teaches "a method for dynamically determining a Group of Picture (GOP) structure in a video based on temporal segmentation." (Office Action dated Mar. 11, 2009, pg. 7). At p. 515, Lee refers to two types of detectors for temporal segmentation – one using an abrupt scene change (which the Office has not used in its rejection) and the other finding scene segmentation points (SSPs). Lee states that:

An SSP corresponds to a point where small changes of scene such as slow panning or zooming ***have accumulated over several frames*** to exceed a distance measure threshold. This detector declares the current frame as an SSP

when the distance measure between the *current frame* and the last *reference frame* is above a threshold.

Lee's system is based on the accumulation of the value of a specific metric – a “distance measure” is summed over a number of frames and an SSP is declared when the sum exceeds a threshold (Lee gives five examples of distance measures and the Office cites specifically the one based on motion compensation error). To make the case for the rejection, the Office jumps from the discussion above all the way to “Then, Lee teaches assigning pictures as B pictures based on a *consistency measure*,” and then cites Tourapis as teaching that “a constant motion speed is known as a measure of consistency between pictures.” (Office Action dated Aug. 21, 2008, pg. 8; emphasis Applicants’).

These leaps fail because neither Lee nor Tourapis teaches or suggests comparing the motion speed of *a first picture in a sequence temporally closest to the reference picture* to the motion speed of each of the other pictures in the sequence, and then determining a frame type of the other pictures following the reference picture based on this comparison. As just discussed, Lee's SSP is a function of values *accumulated* over successive frames, not a “consistency measure” as between frames, and certainly not a comparison of the motion speed (or any value for that matter) of *a first picture in a sequence temporally closest to the reference picture* to the motion speed of each of the other pictures in the sequence.

Tourapis refers to direct mode prediction, which permits motion vectors of a B frame to be derived from a motion vector of a P frame. Referring to Tourapis' Figure 4, the Office says that “picture 404 is the claimed ‘first picture in the plurality of pictures’ closest to the reference picture 402 exhibiting the same consistent scaled motion speed.” (Office Action dated Mar. 11, 2009, pg. 9). Applicants concede that picture 404 is the first picture temporally closest to the reference picture 402, but cannot find any teaching or suggestion that the motion speed of picture 404 is compared to the motion speed of pictures temporally subsequent to picture 404 (e.g., picture 406). Tourapis' disclosure at ¶ 67 simply demonstrates that the system may use the motion vector from I frame 402 to P frame 408 as the reference for the B frames 404 and 406 when an *assumption* is made that the speed is constant between frames 402 and 408. Like Lee, Tourapis simply does not disclose comparing the motion speed of *a first picture in a sequence temporally closest to the reference picture* to the motion speed of each of the

other pictures in the sequence, and is not at all concerned with frame-type assignments based on such a comparison (i.e., when the methods cited by the Office are performed, the frame types of the relevant pictures already are known).

Because the combination of Lee, and Tourapis does not teach or suggest the above limitations, the combination does not render independent claims 1, 10, 18, 29 and 33 and their associated dependent claims obvious under § 103. Therefore, Applicants respectfully request withdrawal of the rejection as to all pending claims.

CLAIM 32 DEFINES OVER THE PRIOR ART

Claim 32 recites:

The video coding assignment method of claim 29, wherein consistency of motion speed is based on:

$$E(n) = \sum_1^{N_{\text{blocks}}} \frac{|e(n,b)|}{N_{\text{blocks}}}, \text{ wherein}$$

$E(n)$ represents the mean of the absolute values of the speed errors of a picture, $e(n,b)$ represents a difference of motion vector displacements of a pixelblock b of the picture with respect to the first picture, each scaled according to its temporal distance from the reference picture, and N_{blocks} represents the number of pixelblocks in the picture.

The combination of Lee, Tourapis and Van Overveld does not teach or suggest the elements recited in claim 32. Applicants fail to see within any of the Office's cited portions any discussion of the equation recited in claim 32. Specifically, Applicants can find no teaching or suggestion of determining the mean of the absolute speed errors of a **picture**, or of a representation of a difference of motion vector displacements with respect to **the first picture that follows the reference picture**.

Because the combination of Lee, Tourapis and Van Overveld does not teach or suggest the above limitations, the combination does not render claim 32 obvious under § 103. Therefore, Applicants respectfully request withdrawal of the rejection as to all pending claims.

REQUEST FOR INTERVIEW

Prior to issuance of a subsequent Office Action in the present application, Applicants request a telephone interview be conducted between Applicants' representative Justin Blanton and Examiner Werner in order to advance prosecution. Applicants respectfully request the Examiner to contact Applicants' undersigned representative at the number provided below to arrange the interview based on the Examiner's availability and prior to the Examiner taking further action in this application.

CONCLUSION

In view of the above amendments and arguments, it is believed that the above-identified application is in condition for allowance, and notice to that effect is respectfully requested. Should the Examiner have any questions, the Examiner is encouraged to contact the undersigned at (408) 975-7500.

The Commissioner is authorized to charge any fees or credit any overpayments which may be incurred in connection with this paper under 37 C.F.R. §§ 1.16 or 1.17 to Deposit Account No. **11-0600**.

Respectfully submitted,

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